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Depression, Anxiety, and Social Disability Show Synchrony of Change in Primary Care Patients

ABSTRACT

Objectives. The purposes of this study were to (1) characterize the social disability associated with the common psychiatric illnesses of primary care patients in terms of role dysfunction (self-care, family role, social role, occupational role) and (2) establish whether severity of psychiatric illness and disability level show synchrony of change.

Methods. A two-stage sample design was employed. In the first stage, 1994 consecutive attenders of 25 general practitioners were screened on psychiatric illness by their physicians and with the General Health Questionnaire. A stratified random sample ($n = 285$) with differing probabilities was selected for a second-stage interview. Patients with psychiatric symptoms were reinterviewed 1 and 3.5 years later ($n = 143$).

Results. (1) Disability level among patients was increased (moderately for depression, mildly for anxiety) and was associated with severity of psychiatric illness. (2) Most disability was found in occupational and social roles. (3) Change in severity of psychiatric illness was concordant with change in level of disability and was largely invariant across diagnosis (depression, anxiety, mixed anxiety/depression). At follow-up, disability among improved patients had returned to normal levels.

Conclusions. Psychiatric illness in primary care patients is associated with mild to moderate disability, and severity of psychiatric illness and disability show synchrony of change. (*Am J Public Health.* 1993;83:385-390)

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Introduction

Recent studies have shown that depression in primary care patients is common and often is not self-limiting or transient; that most cases in the community are seen by general practitioners; and that relatively few patients are referred to mental health specialists.¹⁻¹⁵ Other studies have shown a clinically significant association of depression with social disability.¹⁶⁻³⁰ There is evidence that the associated disability can be rather persistent.¹⁷ Because personal, clinical, social, and economic costs are involved,^{16,17,31} it is important to understand what disability is associated with common psychiatric illness and whether symptom and disability levels follow parallel trajectories over time.

To date, few studies have examined the longitudinal relationship between depression and disability. In a 1-year follow-up study of 185 distressed health maintenance organization enrollees in the top decile of users of ambulatory health care, it was found that a reduction in depression levels was accompanied by a reduction in disability days of approximately 50%.¹⁸ However, the generalizability of these findings is unclear, owing to the selective nature of the sample (in which there was a high prevalence of comorbidity of physical illness and depression) and the exclusive reliance on self-report measures. The latter factor may have caused information bias through the overly negative response set of patients with depressive symptoms.^{32,33} In addition, previous research has not examined the relationship of specific diagnostic categories (e.g., anxiety, depression) to disability.

In the context of the triad of impairment, disability, and handicap, disability is typically defined as "any restriction or lack of capacity to perform an activity in a

manner or within a range considered normal for a human being."^{34,35} In the present study, disability was conceptualized as a restriction or lack of capacity to perform activities and/or manifest behaviors as expected in four well-defined social roles: self-care, family role, social role, and occupational role. Self-care refers to how one takes care of oneself and presents oneself to others in everyday encounters. Family role function is evaluated in terms of participation in and preservation of the household as an independent unit. Social role refers to quantity and quality of contacts with others, excluding family members and professional colleagues. Occupational role concerns adherence to daily routine, performance, and relationships with colleagues at work (for people in gainful employment, volunteer work, or housekeeping); in activities directed at securing a job (for people about to graduate or unemployed); or in daily activities (in case of retirement or long-term unemployment). Consequently, our conceptualization of disability is more social and general

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than the usual approach in terms of instrumental activities of daily living and disability days.

The present study had three objectives: (1) to characterize disability associated with common psychiatric illnesses; (2) to test whether severity of psychiatric illness and disability show synchrony of change, while controlling for physical illness; and (3) to establish how invariant this longitudinal relationship is across baseline severity, recency of onset, and psychiatric diagnosis.

Methods

The study was carried out in the province of Groningen, The Netherlands, during the late 1980s.^{8,19,36-38}

Subjects

Sampling of primary care patients occurred in a two-stage design. In stage 1, 2237 persons aged 16 to 65 years who were patients of 25 general practitioners (GPs) were approached for screening with the 30-item General Health Questionnaire (GHQ)^{39,40} and rated by their physician on current mental health status. Of the 1994 persons who agreed to participate, 43% were positive according to the questionnaire (GHQ+) and 28% were positive according to the general practitioner (GP+). "Positive" was defined as having a score of 5 or higher on the questionnaire or having a current mental health problem detected by the general practitioner. The 25 general practitioners were a representative sample from the total population of general practitioners in the city of Groningen and some surrounding towns (total population 275 000; number of general practitioners approximately 110). The physicians also indicated whether the patient had had a mental health problem in the year preceding the index visit. If this was the case the patient was designated "old"; if not, the patient was considered "new."

Persons selected for baseline examination at stage 2 were a stratified random sample, with differing probabilities depending on physician rating (GP+/GP-), questionnaire status (GHQ+/GHQ-), and "old" or "new" status. Because the main study objective was the long-term outcome of "new" cases of psychiatric illness detected or undetected by general practitioners, the following sampling scheme was used: all "new" detected (GP+) patients ($n = 206$); a random sample ($n = 91$) from the 397 "new" undetected (GP-/GHQ+) patients; a random

sample ($n = 62$) from the 847 "new" GP-/GHQ- patients; and a random sample ($n = 42$) from the 221 "old" GP+/GHQ+ patients. Of this total of 401, 285 were fully examined at baseline (105 refused the baseline interview and 11 had important missing data).

According to the Present State Examination⁴¹ (see below), 91 of the 285 completely examined baseline subjects had less than three psychiatric symptoms. These "asymptomatic" patients, designated "normal" patients, were excluded from follow-up at 1 year (T2) and 3.5 years (T3) post index visit. Because of attrition and missing data, complete longitudinal data were obtained on 143 of the 194 patients eligible for follow-up.

Measures

At T1 (the baseline interview, which took place 1 to 2 weeks after the index visit), T2, and T3, the Present State Examination (PSE)⁴¹ and the Groningen Social Disability Schedule (GSDS)^{42,43} were administered, primarily by clinical psychologists. The time frame for both instruments was the 4 weeks preceding the interview.

The Present State Examination is a standardized semistructured interview covering 140 psychiatric symptoms. Data from the examination were used to assign diagnoses and to construct a sum score of nonpsychotic symptoms (PSE-TOT) that took into account the severity of symptoms. Interviewer-observer reliability on the Present State Examination items used has generally been good: kappa values range from .38 to .81, with a mean of .61.³⁶

The Groningen Social Disability Schedule^{42,43} is a standardized semistructured interview focusing on self-care, family role, social role, and occupational role, each comprising various dimensions. Scores on each dimension and role range from 0 (no disability) through 1 (mild disability) and 2 (moderate disability) to 3 (severe disability). For each dimension, the severity categories have been described in behavioral terms.^{42,43} By asking standardized questions from the schedule and probing, the interviewer collected factual data and made the dimensional and role ratings. The criteria used to evaluate function applied to the reference group of healthy people of the same sex, age, and profession. Interviewer-observer reliability on the Groningen Social Disability Schedule has been shown to be good in a variety of populations, with weighted kappa values for different social roles ranging from .63 to .93.^{42,43} Because

symptom and disability data were collected by the same interviewer, many ratings were checked independently by a second rater (typically another interviewer or project staff member), using the written report of the interviewer, and discussed.

Analyses have shown that the four roles measured by the Groningen Social Disability Schedule constitute a one-dimensional hierarchical scale, suggesting that a simple sum score (GSDS-TOT) can be meaningfully applied.⁴⁴

The presence of physical illness in the 4 weeks preceding the interview was globally assessed at baseline and at T2 and T3 by means of a Present State Examination item. This item asked the interviewer to rate physical illness according to the following categories: 0 (no physical illness); 1 (minor physical illness, e.g., common cold, stiff neck, cough); 2 (mild to moderate physical illness, e.g., mild duodenal ulcer, uncomplicated diabetes mellitus); 3 (serious physical illness, e.g., carcinoma, severe arthritis).

Diagnostic Classification

Psychiatric diagnoses were made according to the Bedford College criteria developed to differentiate the spectrum of common psychiatric illnesses in the community and among primary care patients.⁴⁵ The following categories are distinguished: depression, anxiety, and minor psychiatric disorder (which includes minor depression and minor anxiety). The criteria are described in the Appendix. An additional category, nonspecific psychiatric distress, was constructed for persons without a Bedford College diagnosis who had at least three nonspecific psychiatric symptoms (e.g., worrying, tension pains, muscular tension, tiredness, restlessness, hypochondriasis, irritability, poor concentration). Mixed anxiety/depression refers to comorbidity of anxiety and depression. In addition, major psychiatric disorder includes anxiety or depression or both, with or without a minor disorder.

Recency of onset refers to the time of onset of psychiatric symptoms present at the time of the index visit. Time of onset was established by the interviewer during a short semistructured interview. Recency of onset was classified as recent (onset of less than 12 months prior to the index visit) or remote (onset of more than 12 months prior to index visit; this category also included persons whose remote-onset symptoms had recently been exacerbated). Recency of onset was assessed because the "new" GP+ and/or GHQ+

cases were not necessarily recent (or incident) cases because the symptoms may not have been presented by the patient or detected by the general practitioners in the year prior to the index visit. Reliability data are not available.

Symptom Improvement by Baseline Severity

A study subject was classified as improved if the mean of the two follow-up PSE-TOTs was reduced by at least 50% relative to his or her baseline PSE-TOT. Next, subjects were cross-classified by baseline severity (minor and nonspecific vs major) and improvement status (improved, unimproved) in four severity-improvement groups.

Analysis

Repeated-measures general linear models analysis was performed with SAS software⁴⁶ to assess longitudinal differences in disability levels by severity-improvement status, with physical illness controlled for. A nonproportionally stratified sampling scheme was used; therefore, statistical tests should be interpreted cautiously. Because weighting did not affect the pattern of findings, unweighted data are presented.

Results

Cross-Sectional Findings

Table 1 depicts the sociodemographic characteristics of normal patients (PSE-TOT < 3) and patients with three or more psychiatric symptoms (case patients, classified by recency of onset). Larger numbers of women were found among case patients than among normal patients (Wald's test, $P < .02$), in conformance with other reports.^{1,13,47} No clear association of mean age and educational attainment with case status was observed. Recent-onset case patients were likely to be younger (t test, $P < .01$) and better educated than remote-onset case patients (Wald's test, $P = .03$).

Table 2 presents mean psychopathology (PSE-TOT) and disability (GSDS-TOT) scores, as well as the percentage of patients with at least minor impairment in the four roles. Case patients differed strongly from normal patients in terms of overall as well as role-specific disability. Impaired social and occupational role functioning contributed most to the overall level of disability; self-care and family roles were typically intact. Severity of

TABLE 1—Sex, Age, and Educational Characteristics of Study Subjects (Unweighted Baseline Data)

	% Women	Mean Age, y	Educational Attainment		n
			Low ^a	High ^b	
Normal patients ^c	53.8	37.7	22.2	34.4	91
Recent-onset case patients ^d	63.5	34.0	14.5	43.5	63
Remote-onset case patients ^{e,f}	71.0	39.0	21.1	28.1	131

^aGraduated from elementary school only.

^bGraduated from high school.

^cT1 PSE-TOT less than 3 (see text).

^dT1 PSE-TOT 3 or more (see text).

^eIncludes persons who recently experienced an exacerbation of remote-onset symptoms.

psychiatric illness (PSE-TOT) correlated substantially with level of disability (Pearson $r = .48$).

Table 2 also presents the percentage of patients with at least mild physical illness. Compared with recent-onset case patients, remote-onset case patients were more likely to have at least mild physical illness (Wald's test, $P < .06$) and less likely to have disability (t test, $P = .09$). The two groups did not differ significantly in terms of severity of psychiatric illness (t test, $P < .41$).

Presence of at least mild physical illness at baseline was not associated with severity of psychiatric illness (t test, $P < .11$). Level of disability was slightly higher among patients with at least mild physical illness, but was not statistically significant. These observations were replicated at follow-ups.

Table 3 presents mean disability scores by diagnostic category. Although depressive illness was associated with higher disability than were anxiety and minor psychiatric disorders (t test, $P < .01$), the disability associated with the latter two did not differ significantly from the level observed in the nonspecific distress group. Similar trends were observed for the role scores. These findings suggest that depression (with or without anxiety) in particular is associated with disability.

Longitudinal Findings

Figure 1 depicts the course of disability for each of four severity-improvement groups: (1) major psychiatric disorder (depression and/or anxiety) at baseline and not improved; (2) major psychiatric disorder at baseline and improved; (3) minor psychiatric disorder or nonspecific distress at baseline and not improved; and (4) minor psychiatric disorder or nonspecific distress at baseline and improved. Persons with improved symptoms had substan-

tially lower levels of disability at follow-up, whereas persons with unimproved symptoms had disability levels that were only slightly lower than their baseline levels. At follow-up, disability among persons with improved symptoms dropped to the level found among the asymptomatic (normal) patients at baseline.

In the repeated-measures general linear models analysis for the three occasions on which disability was measured, baseline severity of psychiatric illness and improvement status were entered as factors and severity of physical illness was controlled for. The analysis indicated a highly significant interaction between time and improvement status ($F = 50.1$, $P < .001$). This interaction confirmed the hypothesis that patients with improved psychiatric symptoms and patients with unimproved psychiatric symptoms would have different trajectories of disability. We repeated the analysis to establish whether the pattern of results was similar for diagnostic category (depression, anxiety, mixed anxiety/depression) and for recency of onset (recent onset, remote onset). These stratified analyses showed that the synchrony of change in symptom severity and disability was independent of diagnostic category and recency of onset (graphs not presented).

Discussion

The major finding of this study was that common psychiatric illnesses in primary care were associated with disability, both cross-sectionally and longitudinally. The cross-sectional findings showed that most disability consisted of impaired social and occupational role function and that greater disability was found among patients with depression than among those with anxiety. In general, the more severe the psychiatric illness was in terms of

TABLE 2—Psychiatric Illness^a and Social Disability^b (Unweighted Baseline Data)

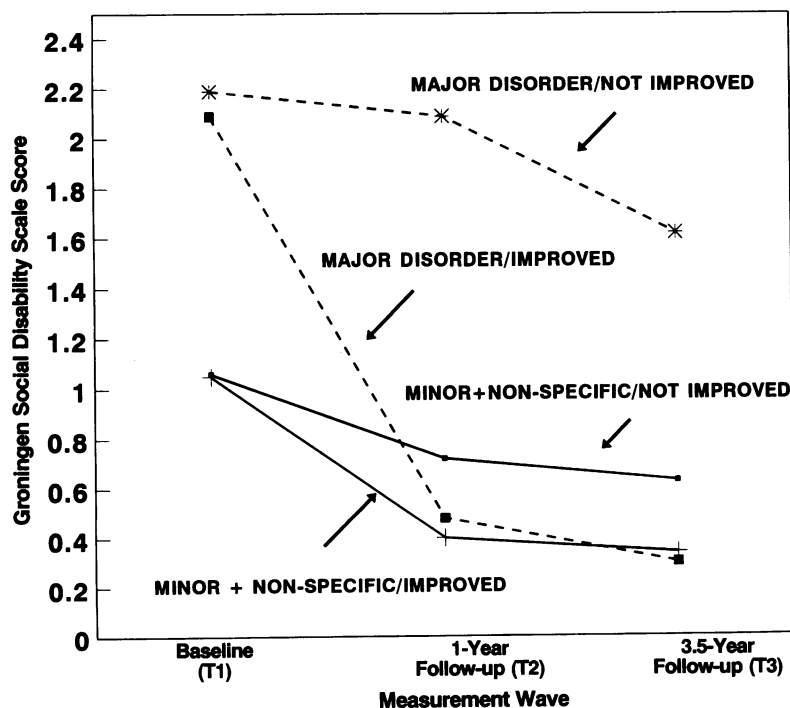
	% With at Least Mild Physical Illness	Mean PSE-TOT Score	Mean GSDS-TOT Score	% with at Least Minor Impairment in				n
				Self-care	Family Role	Social Role	Occupational Role	
Normal patients ^c	13.2	0.7	0.43	3.3	3.3	21.1	11.1	91
Recent-onset case patients ^d	9.5	12.0	1.57	6.3	12.7	49.2	50.8	63
Remote-onset case patients ^d	18.5	11.1	1.23	6.9	11.5	46.6	38.9	131

^aMeasured by the Present State Examination (PSE; see text).
^bMeasured by the Groningen Social Disability Schedule (GSDS; see text).
^cPSE-TOT less than 3.
^dPSE-TOT 3 or more.

TABLE 3—Mean Overall Disability Scores by Diagnostic Category (Unweighted Baseline Data)

	Nonspecific Psychiatric Distress ^a	Minor Psychiatric Disorder ^b			Major Psychiatric Disorder			n ^f
		MiA	MiD	MiA + MiD	Anxiety ^c	Depression ^d	Comorbidity ^e	
Recent-onset case patients	1.18	1.18	1.42	1.83	0.67	2.60	1.67	63
Remote-onset case patients	0.79	0.83	1.30	1.17	1.29	2.18	2.67	131
Total n	61	52	13	12	10	37	9	194

Note. See text and Appendix for definitions of diagnostic categories.
^aPSE-TOT 3 or more but no Bedford College diagnosis.
^bMiD = minor depression; MiA = minor anxiety; MiA + MiD = minor mixed anxiety/depression.
^cWith or without minor depression.
^dWith or without minor anxiety.
^eMajor mixed anxiety/depression.
^fThe table total does not add up to 285 because normal patients (n = 91) are not included.

**FIGURE 1—Synchrony of change in psychopathology and disability, stratified by baseline (T1) symptom severity.**

number and severity of symptoms, the higher the level of disability. These observations are in line with earlier work with community samples and psychiatric outpatients.^{22,25} At the index visit, disability levels among patients with major depression and mixed anxiety/depression were similar to disability levels found in Dutch psychiatric outpatients.⁴⁸

The longitudinal analysis demonstrated that primary care patients whose psychiatric symptoms substantially improved showed corresponding changes in disability level, whereas patients with unimproved or only slightly improved symptoms showed, on average, no improvement in disability level. This pattern appeared to be invariant across the diagnostic categories of depressive illness, anxiety, and mixed anxiety/depression. The disability level of improved patients had returned at follow-up to approximately the same level found among the normal patients at baseline. The longitudinal results strengthen and extend the findings of the only other longitudinal study in primary care, that conducted in Seattle by Von Korff et al.¹⁸ The similarity

of findings is striking, considering the substantial differences between the Seattle and Groningen studies in sample, design, time frame, and measures.

Our results suggest that the cross-sectional and longitudinal association between severity of psychiatric illness and disability level was largely independent of time of onset of the symptoms. As expected, the remote-onset case patients tended to be older, to be more likely to have comorbidity of mild physical illness, and to have lower levels of disability than did recent-onset case patients. These patterns, however, did not affect the relationship between psychiatric illness and disability.

Disability in this study was conceptualized and measured in terms of dysfunction in four social roles (self-care, family role, social role, and occupational role). Although disability in these roles may be due to physical as well as psychiatric illness, the underlying mechanisms may differ somewhat. Physical illness may produce disability because of limitations in physical capacities such as mobility, vision, aerobic capacity, and strength, whereas psychiatric illness may produce disability through limitations in cognitive, motivational, and emotional capacities and the tendency to experience multiple minor physical symptoms⁴⁹ (e.g., fatigue and pain).

Our diagnosis-specific findings should be interpreted cautiously. Although we were able to follow up a reasonable number of patients with major and minor depression, minor anxiety, and nonspecific psychiatric distress, the small number of major anxiety cases renders conclusions about this category highly tentative.

Only a minority of our second-stage sample (15%) had mild to serious physical illness. The low severity of physical illness in this sample may explain the lack of a relationship between physical illness and disability ratings. The global and crude measurement of physical illness by a single item may also have been a factor; limitations in physical capacities were not assessed. At the same time, the lack of a significant association between physical illness and disability may be due to the possibility that disability in role function is less sensitive to mild physical illness than to psychiatric illness. It may be easier to perform the selected roles with mild to moderate limitations in physical capacities than with psychiatric illness that impairs the highest-order capacities of the human organism.

It should be stressed that our study sample is not fully representative of consecutive patients with psychiatric illness in primary care. "New" cases were sampled with higher probabilities. However, it is unlikely that the sampling scheme seriously biased the results. Many "new" cases had onsets of more than 1 year prior to the index visit but were rated by the physician as "new" because the patient had not presented the psychiatric illness in the previous year or because the illness was not detected by the physician at an earlier visit. Substantial differences in the relationship of psychiatric illness to disability were not found between recent-onset and remote-onset case patients.

Another question is whether our findings can be generalized to the community. We selected the primary care setting because it is the setting where most psychiatric illness is presented and managed.¹⁵ At least two thirds of community patients with nontransient psychiatric illness consult their general practitioners and only a few are referred. There may be, however, a considerable time lag between onset and consultation,⁵⁰ and psychiatric illness is often presented in a somatic idiom.^{8,36,39}

Our longitudinal data on psychiatric illness and disability show synchrony of change but not how and why this synchrony occurs. Because dates of onset and remission of disability were not assessed, causal ordering cannot be determined. There are arguments that psychiatric illness may be secondary to disability, with social stress resulting from disability as the etiologic mechanism.²¹ More plausible is the hypothesis that depression and disability are mutually reinforcing mechanisms, with initial psychiatric distress leading to impairment in the occupational and social roles, in turn reducing social reinforcement and self-esteem and further exacerbating psychological distress.

An important question is what can be done in primary care for those patients who suffer from persistent psychiatric illness and associated disability. Although some work on this question has already been done,^{e.g.,49,51,52} there is a strong need for clinical trials in primary care settings in which pharmacological and psychosocial interventions are evaluated with respect to their abilities to improve functional status. Such studies should also provide data on temporal relationships between symptomatology and disability. Our examiner-based, three-wave data covering a period of 3.5 years strongly suggest that success-

ful treatment of psychiatric illness brings about a reduction of disability in role function. □

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APPENDIX—Bedford College Diagnostic Criteria

Depression—Depressed mood and 4 or more of the following 10 symptoms: hopelessness, suicidal ideas or actions, weight loss, early wakening, delayed sleep, poor concentration, neglect due to brooding, loss of interest, self-depreciation, and anergia.

Anxiety—(1) Free-floating autonomic anxiety more than 50% of the time, or more than five panic attacks; or (2) free-floating autonomic anxiety less than 50% of the time and one to four panic attacks; or (3) situational autonomic anxiety and marked generalization of avoidance.

Minor psychiatric disorder—A weighted sum score on the Present State Examination that typically equals or exceeds 4,

but no symptoms are present that would permit a diagnosis of depression or anxiety as defined above. This category includes **minor depression** (depressed mood and at least 1 of the 10 symptoms listed for depression) and **minor anxiety**, which is defined as (1) free-floating autonomic anxiety less than 50% of the time, (2) less than five panic attacks, or (3) situational autonomic anxiety and avoidance whenever possible.

Note. In the original Bedford College classification, the term "borderline" is used instead of "minor." We prefer to use "minor" to avoid unnecessary confusion with the concept of borderline personality disorder.